

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problems Mailbox.**

**THIS PAGE BLANK (USPTO)**

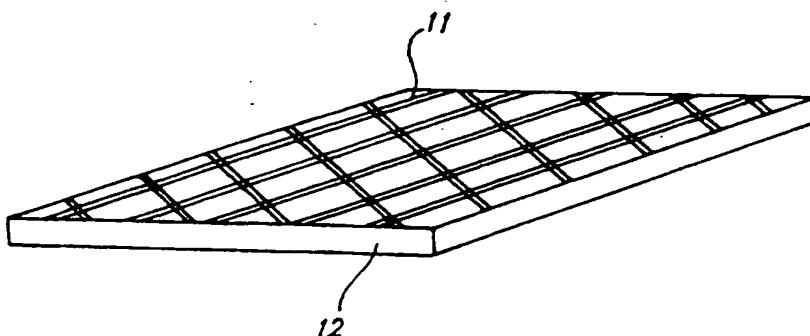
# UK Patent Application GB 2 317 363 A

(43) Date of A Publication 25.03.1998

(21) Application No 9619645.6	(51) INT CL <sup>6</sup> B32B 27/12 , E04H 15/54
(22) Date of Filing 20.09.1996	
(71) Applicant(s) <b>C M I (Trimmings) Limited</b>  (Incorporated in the United Kingdom)  <b>Wood Street Works, BURNLEY, Lancs, BB10 1QH, United Kingdom</b>	(52) UK CL (Edition P ) <b>B5N N195 N196 N199 N20X N207 N21Y N223 N255 N257 N2712 N2730 N295 N297 N401 N408 N41X N491 N507 N508 N509 N586 N593 N595 N597 N599 N767 N77X U1S S1820 S1824 S1859 S3042</b>
(72) Inventor(s) <b>Wilfred Sparks</b>	(56) Documents Cited <b>GB 2041742 A EP 0689785 A1 WO 93/09940 A2 FR 002592334 A1 FR 002585383 A1 US 5431979 A US 5213874 A</b>
(74) Agent and/or Address for Service <b>Wilson Gunn M'Caw &amp; Co. 41-51 Royal Exchange, Cross Street, MANCHESTER, M2 7BD, United Kingdom</b>	(58) Field of Search <b>UK CL (Edition O ) B5N INT CL<sup>6</sup> B32B 27/12 , E04H 15/54 ONLINE:WPI</b>

## (54) Forming a cut resistant material

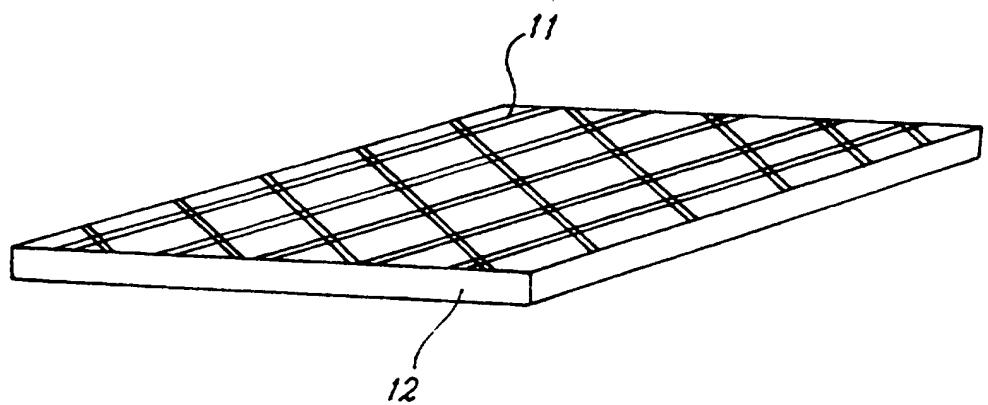
(57) A cut resistant material is formed by applying a metallic material (12) to a polymeric material (example PVC) (11) and then applying a further polymeric layer (13) over the metallic layer (12) to encapsulate the metallic material (12) within the polymeric material (11,13). The metallic material (12) within the polymeric material (11,13) acts to resist cutting by a blade or other cutting instrument. The material of the invention can be connected to an electrical supply, the metallic material (12) being conducting whereby upon contact with this material a person would receive an electrical shock.



GB 2 317 363 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy. The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995. This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

11



- 1 -

**A METHOD OF FORMING A CUT RESISTANT MATERIAL**

This invention relates to a method of forming a cut resistant material.

A problem arises when flexible materials are used as covering materials, for example as soft top car roofs, tonneau covers, side covers for articulated trailers and commercial vehicles, insofar as such materials can usually be reasonably easy to cut using a knife or other cutting implement and therefore access can be gained to the vehicle through the material permitting a security risk.

It is an object of the present invention to provide a method of forming a cut resistant material whereby the material can be used for purposes such as those described above with a minimised security risk to the contents of vehicles.

According to a first aspect of the present invention therefore there is provided a method of forming a cut resistant material comprising applying a metallic material to a flexible cover material, said metallic material acting to resist cutting of the cover material.

With this method it is possible to produce a material which has greater resistance to cutting than prior art materials.

Preferably the metallic material is woven or knitted in form prior to application to the cover material. Alternatively the metallic material can be of any suitable form as desired or as appropriate.

Preferably the cover material comprises a polymeric material and most

preferably comprises a plastics material. The polymeric material may comprise polyvinylchloride (PVC).

Most preferably, polymeric material is applied to said surface of said polymeric material so as to cover said metallic material whereby said  
5      metallic material is encapsulated with said polymeric material.

Preferably, in use, the material formed using the method of the invention may be linked to an electrical supply whereby a small current can be passed through the metallic material. This construction has particular application to the use of the material formed using the method of the  
10     invention in vehicles, e.g. as roofs or covers, since a small electrical shock would be received by a thief who attempts to enter the vehicle through the material.

According to a second aspect of the present invention therefore there is provided a cut resistant cover material comprising a polymeric material  
15     which has applied thereto a metallic material, said metallic material acting to resist cutting of the material.

The second aspect of the invention may have some or all of the features of the first aspect of the invention.

The invention will now be described further by way of example only  
20     and with reference to the accompanying drawing, the single figure of which shows a schematic representation of one form of material formed in accordance with the present invention.

The method of the invention comprises applying a layer of a metallic material 11 to a polymeric material 12, preferably polyvinylchloride (PVC). The metallic material 11 can be applied to the polymeric layer 12 in any suitable manner, but preferably it is coated onto the polymeric layer.

5 In the drawing the metallic layer 12 is shown in the form of a mesh, however the metallic layer can take any form as desired or as appropriate and therefore may be continuous or discontinuous and may be formed from woven or knitted strands or pieces of metallic material.

In a preferred embodiment, as shown in the figure, further polymeric  
10 material 12 is applied to cover the metallic material 11 whereby the metallic material 11 is encapsulated within said polymeric material 12, 13.

Due to the presence of the metallic layer 12, the material has resistance to cutting by a blade or other cutting instrument. Indeed, it is thought that the material will be cut resistant to all but a very determined thief who is prepared to spend considerable time in the attempt to penetrate the material. Of course, it will be realised that a thief is not usually prepared to take such a length of time to attempt to gain entry and therefore the security of the vehicle is increased if the material of the invention is used.  
15

20 It is also possible with material produced by the present invention to be connected up to an electrical source (not shown), e.g. vehicle battery, such that, upon contact with the material, a person would receive a small

electric shock due to a small current flowing in the metallic layer 11.

It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiment which are described by way of example only.

CLAIMS

1. A method of forming a cut resistant material comprising applying a metallic material to a flexible cover material, said metallic material acting to resist cutting of the cover material.
- 5 2. A method according to claim 1 wherein the metallic material is woven prior to application to the cover material.
3. A method according to claim 1 wherein the metallic material is knitted prior to application to the cover material.
4. A method according to any one of claims 1 to 3 wherein the cover 10 material comprises a polymeric material.
5. A method according to claim 4 wherein said polymeric material comprises polyvinylchloride (PVC).
6. A method according to claim 4 or claim 5 wherein the polymeric material is applied to the surface of the polymeric cover material so as to 15 cover the metallic material whereby similar type material is encapsulated within polymeric material.
7. A cut resistant cover material comprising a polymeric material which has applied thereto a metallic material, said metallic material acting to resist cutting of the cover material.
- 20 8. A cut resistant cover according to claim 7 in combination with an electrical supply, said electrical supply being connected to said material whereby a small current can be passed through the metallic material.

9. A method substantially as hereinbefore described with reference to the accompanying figure.
10. A cut resistant cover according to claim 7 substantially as hereinbefore described with reference to the accompanying figure.



The  
Patent  
Office

pplication No: GB 9619645.6  
Claims searched: 1 to 10

Examiner: R.J.MIRAMS  
Date of search: 10 December 1997

**Patents Act 1977**  
**Search Report under Section 17**

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK CI (Ed.O): BSN  
Int CI (Ed.6): B32B 27/12. E04H 15/54.  
Other: ONLINE: WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB2041742A - (Etablissements M Duret et Fils) whole document	at least 1 to 7
X	EP0689785A1 - (Irausa-Loire) whole document	at least 1, 4, 6 and 7
X	FR2592334A1 - (Sable) see abstract	at least 1 to 3 and 7
X	FR2585383A1 - (Zilli) see abstract	at least 1 to 4 and 7
A	US5431979A - (Dellinger)	
X	US5213874A - (Prudhomme) whole document	at least 1 to 4 and 7
X	WO93/09940A2 - (Memtec) e.g. page 11 lines 23 to 37	at least 1 to 4 and 7

Document indicating lack of novelty or inventive step  
Document indicating lack of inventive step if combined with one or more other documents of same category.

Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.  
E Patent document published on or after, but with priority date earlier than, the filing date of this application.

**THIS PAGE BLANK (USPTO)**